

What is claimed is:

1. An electrode for an electric operation device, comprising:

a hollow electrode being formed in a hollow tube shape extended long from  
5 a closed tip, and having an insulation-coating on the outside surface except a  
predetermined length of the closed tip side;

a refrigerant tube having a smaller diameter than a diameter of the hollow  
electrode, and being inserted into the hollow electrode, the refrigerant tube  
supplying refrigerants for cooling a living tissue contacting the closed tip and the  
10 hollow electrode into the hollow electrode, and externally discharging the  
heat-exchanged refrigerants from the living tissue through the gap between the  
refrigerant tube and the hollow electrode;

at least one first hole formed on the outside surface of the hollow electrode  
where the insulation coating has not been formed, for externally discharging some  
15 of the refrigerants supplied through the refrigerant tube from the hollow electrode;  
and

a flow control means formed on the outside surface of the hollow electrode  
where the insulation coating has not been formed, and operated as a discharge  
resistance to the refrigerants discharged from the first hole, for controlling a flow of  
20 the refrigerants.

2. The electrode of claim 1, wherein the hollow electrode is conductive, and  
power is externally applied through the hollow electrode.

25 3. The electrode of claim 1, further comprising a saline solution pipe being  
inserted onto the outside surface of the hollow electrode with a predetermined gap,

and having an insulation coating on the outside surface except a predetermined length of the closed tip side, the saline solution pipe infusing a saline solution through the gap, and discharging the saline solution through at least one second hole formed on the outside surface where the insulation coating has not been  
5 formed.

4. The electrode of claim 3, wherein the hollow electrode and the saline solution pipe are conductive, different power is applied to the hollow electrode and the saline solution pipe, and an insulation member for preventing short circuit by  
10 the saline solution supplied through the gap between the hollow electrode and the saline solution pipe is formed on the surface of the hollow electrode.

5. The electrode of claim 4, wherein the insulation member comprises an insulation coating formed on the surface of the hollow electrode, and an insulation  
15 packing provided between the hollow electrode and the saline solution pipe.

6. The electrode of any one of claims 1 to 5, wherein the closed tip of the hollow electrode is a conductive spearhead, and the hollow electrode and the  
20 spearhead are incorporated with each other.

7. The electrode of any one of claims 1 to 5, wherein the flow control means is a hollow tube being inserted onto the outside surface of the hollow electrode where the insulation coating has not been formed, and having at least one third hole on the outside surface, the flow control means controlling a volume of the  
25 discharged refrigerants by alternately installing the first hole of the hollow electrode and the third hole of the hollow tube, and operating as a discharge resistance to the

refrigerants discharged from the first hole.

8. The electrode of claim 7, wherein compression units of the hollow tube are formed in a zigzag shape on a discharge passage of the first hole, the third  
5 hole and both ends of the hollow tube, and operated as discharge resistances to the refrigerants discharged from the first hole, for controlling the volume of the discharged refrigerants.

9. The electrode of any one of claims 1 to 5, wherein the flow control means  
10 is a porous metal sintered body layer formed on the outside surface of the hollow electrode where the insulation coating has not been formed, the sintered body layer being operated as a discharge resistance to the refrigerants discharged from the first hole, for controlling a volume of the discharged refrigerants.

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